

Willey (N.)

THE

G. D. Savage

MORTALITY EXPERIENCE

OF

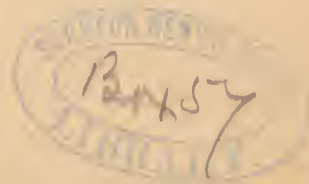
AMERICAN MISSIONARIES

BY

NATHAN WILLEY.

BEING A COMPLETE RECORD OF THE MORTALITY EXPERIENCE OF
THE FOREIGN MISSIONARIES OF THE A. B. C. F. M., FROM
ITS ORGANIZATION TO JULY 1, 1873, AS COMPARED
WITH THE "AMERICAN EXPERIENCE"
TABLE OF MORTALITY.

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To the Editorial Fraternity.



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C. C. HINE,

176 BROADWAY, N. Y.

MORTALITY EXPERIENCE OF AMERICAN MISSIONARIES.

BY NATHAN WILLEY.

THE following tables comprise a record of the mortality experience of over 1,000 missionaries of the A. B. C. F. M., including more than 13,000 years' service, mostly in foreign lands. The original data from which these tables were compiled were prepared by Rev. John A. Vinton, of Winchester, Massachusetts. Mr. Vinton has spent several years in preparing statistical information of this kind for the Board, and but few men ever lived more competent to execute such a task.

These tables embrace all the missions established by the Board since its organization. In some cases, missions have been transferred to other Boards, as the Presbyterian and Reformed Dutch, and from that time the A. B. C. F. M. has had no further control over them. Missions have also been discontinued, as in the Sandwich Islands and Borneo. In these cases the data furnished do not generally extend beyond the period of transfer or discontinuance.

In preparing these tables, the compiler was furnished with cards containing the name, place and date of birth, date of embarkation, of death, release, or return to this country, and the field of labor of each missionary. In a very few instances the date of birth was not given, but the number of years of exposure was always ascertained. In such cases the average expected mortality of the known ages exposed in each locality was found, and the additional mortality from the unknown ages, found by a simple proportion, was added to it.

It will be noticed that there is a great difference in the mortality in different parts of the globe. In Western Africa, Southern India, Southern China, and the Indian Archipelago, the mortality has been from three to nearly seven times as great as the American Experience Tables indicate, while in the Sandwich Islands and in Southern Africa the aggregate mortality has been less. In the Sandwich Islands, though lying within the tropics, the mountainous nature of the country enables foreigners to select places of residence where the air is as mild as in the mountains of Tennessee; and in South Africa, the mission stations are on an elevated pla-

teau, where the climate is as healthy and salubrious as in West Virginia.

But in all that belt of country commencing with Turkey, and extending eastward and southward through Syria, Persia, India, and Southern China, and especially in the Indian ocean, the mortality of American missionaries has been excessive, as a glance at the RECAPITULATION TABLE will show. In these countries, fevers and the cholera have caused a large ratio of the deaths, while only a very small number have died by violence.

One important and instructive feature in these tables is the comparative mortality of males and females. In all the unhealthy countries, with the singular exception of Persia, the mortality among women is much greater than among men. This may be partly accounted for by the younger age of embarkation and the less previous exposure to hardship. Among the missionaries to Turkey, the mortality among females who embarked under the age of twenty-five has been about two-and-a-half times as great as among those who were older at the time of leaving home. Among the female lives in the Sandwich Islands, we find eleven deaths between the ages of twenty-five and thirty-nine inclusive, while the tabular mortality calls for a fraction over six.

We find also a good illustration of the influence of climatic differences upon northern men and women living in the Southern States. In the missions among the Cherokee and Choctaw Indians, in the States of Georgia, Mississippi, Arkansas, and the Indian Territory, the mortality of males is about 44 per cent., and of females 46 per cent. greater than the tabular rate.

Another circumstance which will make these tables of great practical value to our life insurance companies, is the fact that nearly all these lives are from the Northern States, not more than one or two per cent. being from the south or foreign countries.

We cannot assert that these tables give the total mortality of the American missionaries arising from their foreign residence. In many cases, finding that health and usefulness were ruined, the missionary bade farewell to his chosen field and returned to die in his native land. If his recovery was deemed impossible, he severed his connection from the Board, and his subsequent record does not appear in this table. Neither have we any account of those whose health, though permanently injured, was just sufficient to enable them to linger for a few years till prematurely cut off by death, after they had left the Board and engaged in other pursuits. To obtain the total mortality which has resulted, directly and indirectly, from missionary life, would require more elaborate data.

WESTERN AFRICA, RIVER GABOON,
AND CAPE PALMAS.

SOUTH AFRICA.

AGE.	MALES.				FEMALES.				MALES.				FEMALES.			
	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.
	Years.	Months.			Years.	Months.			Years.	Months.			Years.	Months.		
18																
19																
20						10										
21					2											
22		6			1	9	.1015	1					1	8		
23	1				3	2			1	2			5	5	.1307	
24	1				5	1			2	6			5	4		
25	1	6			4	7			3	3			7	10		
26	3	3			4	8		1	4	10			10	3		
27	4	9	.2090		5	2	.2254	1	6	1	.2320		12	3	.4556	
28	6	5			6	7			5	6			11	11		
29	7	1		1	6	6			7	5			13	7		
30	6	11			10	6			10	6			15	10		
31	9	5		1	6				12	11		1	11	4		1
32	7	10	.3271	2	6	6	.2503		13		.5846	1	14		.6305	
33	6	10			5	7		2	14	10			14			
34					5	8			16	8			15	1		
35	6	8			5				17				16			
36	6	10			5				16				16			
37	5	10	.2709	1	5		.2193		16		1		16		.7180	
38	5				5				15	8		1	16			
39	5				3	9		1	15				14	8		
40	5				3				15				13	3		
41	4	3			3				15				13			
42	4		.2109		2	5	.1034		15		.7365		12		.6382	
43	4				1	2			14	5			12	11		
44	3	4			6				12	5			10	1		1
45	3								11	3			9	2		
46	3								11			1	8			
47	3		.1760						9	10	.6000		7	11	.4690	
48	3								8				7			
49	2	8							8	11			6	1		
50	2								6	9			4			
51	2								6		.4989		4		.3061	
52	1	4	.1128						6				3	4		1
53	1								5	8			3			
54	1								3	9			2	2		
55	1								2	3			2			
56	1								2		.2560		2		.1956	
57	1		.1067						2				2			
58	1								2				1			
59	1								2				1			
60	1								2				1			
61	1		.0771						2				1		.6890	
62		8							2		.3129		1			
63									2					1		
64									2							
65									2							
66									1	10						
67									1							
68									1		.4507					
69									1							
70									1							
71									10							
72																
73																
74																
75																
76																
77																
78																
79																
80																
81																
82																
Total yrs.	143	1	1.4065	6	103	3	.8099	5	363	3	4.4272	5	357		3.6267	3
Ad'l ages unknown.	8	1		2	33	3		3								
Total..	151	2	1.5747	8	136	6	1.1897	8	363	3	4.4272	5	357		3.6267	3

AGE.	TURKEY.								SYRIA.							
	MALES.				FEMALES.				MALES.				FEMALES.			
	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.
	Years.	Months.			Years.	Months.			Years.	Months.			Years.	Months.		
18					1	2										
19					1	9										
20					5	2							2	5		
21		1			11	3		1		6			2	3		1
22	2	3			23	7	.9264		1	7			5	7		
23	4	3	.1366		32	3		1	2	5	.0633		6	6	.2142	1
24	10				43				3	4			10	2		1
25	22	8			47	6		1	5	10			13	10		
26	31				54	4		1	10	1			15	11		
27	41	2	1.7012	1	60	4	2.4751	2	15	9	.5348		21	1	.7794	
28	52	10			68	4			16				22	4		1
29	60	3		2	71	6		1	17	7		1	21	11		
30	69			1	71	9			18	4		1	21	6		
31	74	1		3	64	10		4	19	7			19	10		1
32	75	10	3.1100		60		2.5277	3	19	5	.8198		20	10	.8277	1
33	73	11		1	50	3		1	18	11		1	18	2		
34	68	6			46	10			19				15	10		2
35	63	3			42	11		1	18	7			12	7		
36	59	8			40	10			17	9			12			
37	57	2	2.6057	2	39	11	1.8184	1	16	8	.7664		10	5	.4771	
38	53	6		1	38	3			16			1	9			
39	48	7			35				14				7	8		
40	45	6			29	1		1	12	7		1				
41	40	9		1	26			1	10				7			
42	35	8	1.8753		22	5	1.1585		9		.4877		7		.3306	
43	32	10		2	18	10			8	3			6	3		
44	28	2			16	8			7	9			5			
45	25	7			12	3			7				4	11		
46	23	3		1	11				7				4			
47	22		1.3341		9		.5610	1	6	1	.3850		3	6	.2195	
48	21	4			7	11			6				3			
49	19				6	10			6				2	11		
50	16	10			5	6			5	9			1	11		
51	15				5				5				1			
52	15		1.1413		5		.3821		4	2	.3398		1		.0911	
53	11			1	5				4			1	1			
54	13	4			4	4			3	2		1	1			
55	13				4				2	4		1	1			
56	10	9			4				2				1			
57	9	1	1.0312		3	3	.3574		2		.2009		1			
58	8	2		1	3				2				1		.1067	
59	7	4			2	6		1	1	1			1			
60	7				2				1				1			
61	7				2				1		.1107		1		.0963	
62	7		.9231		2		.2602		1				1			
63	4	6			1					10				4		
64	4				1											
65	4					4										
66	3	5														
67	2	11	.6829	1												
68	2															
69	2															
70	2															
71	2															
72	2		.9187													
73	2															
74	2															
75	1			1												
76		10		1												
77																
78																
79																
80																
81																
82																
Total yrs.	1310	2	15.4931	23	1119	8	10.4701	24	366	4	3.7074	7	334	8	3.1426	9
Add ages unknown	11			1	81	11		4	2	6			16	8	.1568	
Total..	1351	2	15.6214	24	1301	7	11.2359	28	368	10	3.7327	7	351	4	3.2994	9

AGE.	PERSIA.								INDIA, CEYLON, MADURA, MADRAS, ARCOT, SIAM, SINGAPORE, AND INDIAN ARCHIPELAGO.							
	MALES.				FEMALES.				MALES.				FEMALES.			
	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.
	Years.	Months.			Years.	Months.			Years.	Months.			Years.	Months.		
18	...	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	6	11	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	11	6	...	2
21	...	11	...	...	2	2	...	...	1	...	...	...	15	8	...	...
22	1	...	...	...	3	...	...	...	4	8	...	...	24	11	1,1846	...
23	1	...	.044	...	4	6	.1406	...	9	5	.2646	...	37	11	...	1
24	2	8	...	...	8	...	...	...	18	2	...	1	50	8	...	1
25	2	4	...	...	9	11	...	1	23	7	...	1	60	8	...	2
26	2	10	...	1	11	3	...	1	33	6	...	1	66	1	...	3
27	5	3	.2275	...	12	10	.4626	...	43	5	1.8880	...	65	11	2,7909	...
28	8	2	...	...	13	1	...	...	56	8	...	1	73	8	...	3
29	9	2	...	1	11	1	...	1	73	2	...	1	75	3	...	2
30	10	10	...	...	11	1	...	...	73	9	...	4	74	7	...	1
31	12	10	...	...	13	8	...	...	78	9	...	...	68	11	...	2
32	13	10	.5781	...	14	8	.5208	1	85	4	3.4730	1	65	11	2,8196	...
33	14	8	...	...	11	9	...	...	85	10	...	1	61	11	...	2
34	15	...	...	...	9	4	...	...	79	10	...	3	56	3	...	5
35	13	10	...	1	9	...	...	...	75	10	...	...	48	5	...	1
36	12	8	...	1	9	...	...	...	71	7	...	2	42	9	...	2
37	12	...	.5401	...	8	11	.3863	...	66	11	3.0758	2	43	3	1,8176	...
38	10	9	...	2	7	11	...	...	62	3	...	3	33	11	...	5
39	9	3	...	...	6	7	...	...	56	6	...	1	28	6	...	...
40	9	...	...	...	6	...	...	...	51	7	...	...	27	2	...	...
41	6	8	...	...	6	...	...	...	49	...	...	...	25	...	...	2
42	6	...	.3323	...	6	...	.3101	...	44	...	2.3102	1	22	...	1,1705	...
43	5	9	...	1	4	...	...	...	41	9	...	...	19	4	...	1
44	5	...	...	...	4	8	...	...	39	...	...	...	19	11	...	...
45	5	...	...	...	3	10	...	...	35	4	...	2	20	7	...	...
46	5	...	...	...	3	...	...	...	33	8	...	1	19	2	...	...
47	5	...	.3000	...	3	...	.1760	...	32	...	1.9177	1	19	...	1,1571	...
48	5	...	...	...	3	...	...	...	30	...	...	2	18	...	...	...
49	5	...	...	...	1	10	...	...	28	11	...	...	18	1	...	...
50	5	...	...	...	...	...	...	...	25	3	...	...	18	7	...	...
51	5	...	...	...	...	...	...	...	22	9	...	1	15	9	...	...
52	5	...	.2911	...	...	...	...	...	18	10	1.4914	1	15	10	1,1247	...
53	2	11	...	2	...	...	...	...	14	...	...	...	13	2	...	...
54	1	...	...	...	...	...	...	...	14	5	...	...	10	4	...	1
55	1	...	...	...	...	...	...	...	12	...	...	2	9	3	...	...
56	1	...	...	...	...	...	...	...	10	...	...	...	9	1	...	...
57	1	...	.1067	...	...	...	...	...	10	1	1.1806	...	8	5	...	...
58	1	...	...	...	...	...	...	...	9	...	...	...	7	...	...	...
59	1	...	...	...	...	...	...	...	8	3	...	...	7	...	...	...
60	1	...	...	...	...	...	...	...	7	...	...	2	6	...	...	...
61	1	...	...	...	...	...	...	...	6	7	1.0717	...	5	4	.8866	...
62	1	...	.1512	...	...	...	...	...	6	...	...	...	5	...	...	...
63	1	...	...	...	...	...	...	...	6	...	...	...	5	...	...	...
64	...	10	...	1	...	...	...	...	6	...	...	...	5	...	...	...
65	...	...	...	...	...	...	...	...	5	5	...	2	4	11	...	...
66	...	...	...	...	...	...	...	...	3	1	...	...	3	2	...	...
67	...	...	...	...	...	...	...	...	3	...	.8938	...	2	...	.6710	...
68	...	...	...	...	...	...	...	...	3	...	...	...	2	...	...	...
69	...	...	...	...	...	...	...	...	3	...	...	...	2	...	...	...
70	...	...	...	...	...	...	...	...	3	...	...	...	2	...	...	...
71	...	...	...	...	...	...	...	...	3	...	...	...	2	...	...	...
72	...	...	...	...	...	...	...	...	2	9	.9340	1	2	...	.7373	...
73	...	...	...	...	...	...	...	...	2	...	...	...	2	...	...	...
74	...	...	...	...	...	...	...	...	1	11	...	1	2	...	...	...
75	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...
76	...	...	...	...	...	...	...	...	1	...	...	...	2	...	.6139	...
77	...	...	...	...	...	...	...	...	1	...	...	...	1	8	...	1
78	...	...	...	...	...	...	...	...	...	...	.9566	...	...	4	...	...
79	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
80	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
81	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
82	...	...	...	...	...	...	...	...	11	...	...	1	...	...	...	...
Total yrs.	245	2	2.5714	11	223	1	2.0105	4	1610	3	19.3974	41	1398	6	15.8700	42
Add ages unknown	10	1	...	...	21	...	...	1	25	8	...	1	79	8	...	13
Total.	255	3	2.6772	11	247	1	2.2268	5	1636	11	19.6963	42	1478	2	16.7741	55

AGE.	SOUTH CHINA.								NORTH CHINA.							
	MALES.				FEMALES.				MALES.				FEMALES.			
	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.	Years of Exposure.		Expected Mortality.	Actual Mortality.
	Years.	Months.			Years.	Months.			Years.	Months.			Years.	Months.		
18																
19		3														
20		4														
21	1	11			1								2			
22	1		.0751		1								2			
23	2				2	5	.0730			6			4			
24	3				4	5			1	7			4	3		
25	3				6	8			2	3			5	3		
26	3	4			7	8			3	9			4	10		
27	9	4	.3149	1	8	11	.3221		5	7	.2766		5	5		
28	9	7			7	6		1	9				6	6		
29	9	6			9	3			11	1		1	5			
30	12			1	11	6			10	10			6	5		
31	13				12				11	6			7			
32	13		.5652		12		.4890		11				6			
33	13	8			11	2			9	6		1	6	7	.2489	
34	14				10	3		1	9				4	11		
35	13	5		1	10				10				5			
36	13	10		1	8	9		2	10	9			4	11		
37	12		.5518		7	7	.3432		6	1	.2793		3	10	.1821	
38	11	8			6	3		2	4	7			3			
39	10	2		1	4	7			3				3			
40	10				4				3				3			
41	10				4				3				3			
42	10	3	.4921	1	4		.2332		3		.1538		3		.1333	
43	9				4				3				2			
44	8	9			2				3				2			
45	7	7			1	1	1		3				2			
46	6	11			8				3				2			
47	5	5	.3310						3		.1560		2			
48	4	5							3				2		.1200	
49	3	4		1					2				2			
50	3								2				2			
51	3								2				2			
52	3		.2039						2		.1539		2		.1539	
53	2	3							2				2			
54	2								2				2			
55	2								2				2			
56	2								2				2			
57	2		.2134						1	5	.1689		2		.2134	
58	2								1				2			
59	2								1				2			
60	2								6		1		1	4		1
61	2		.2608										1		.1852	
62	1	4											1			
63	1													7		
64	1															
65	1															
66	1															
67	1		.2303													
68	1															
69		10		1												
70																
71																
72																
73																
74																
75																
76																
77																
78																
79																
80																
81																
82																
83																
Total yrs.	285	11	3.2445	8	165	4	1.4617	7	161	9	1.6316	3	155	9	1.5172	
Add ages unknown.	22	5			26	4		1					6			
Total..	308	4	3.5027	8	191	8	1.6932	8	161	9	1.6316	3	141	9	1.6156	1

AGE.	SANDWICH ISLANDS AND MICRONESIA.								CHEROKEE AND CHOCTAW INDIANS.							
	MALES.				FEMALES.				MALES.				FEMALES.			
	Years of Expos- ure.		Expected Mor- tality.	Actual Mortal- ity.	Years of Expos- ure.		Expected Mor- tality.	Actual Mortal- ity.	Years of Expos- ure.		Expected Mor- tality.	Actual Mortal- ity.	Years of Expos- ure.		Expected Mor- tality.	Actual Mortal- ity.
	Years.	Months.			Years.	Months.			Years.	Months.			Years.	Months.		
18																
19	1				2								2			
20	1	8			2								2			
21	2				4				5				6			
22	2	7	.2023		10				8				8			
23	6				19		.5251		9				11		.5054	
24	12	3			27	8			10	9	.1698		15	4		
25	16	6			33	2		1	17	9			20	3		
26	23	1			41	10			20	1			23	4		
27	32	8	1.2623	1	49	9	1.8989	1	25	5	1.0512		22	8		1
28	37	10			53	2			29	2			22	4	.9215	
29	43	11		1	53	9		1	35	10			22	8		1
30	47	6			55	4			35	7			21	5		2
31	50	4			55	3		2	36	7			20	7		1
32	55	3	2.3418	1	51	10	2.2701		35	8	1.5192	1	20	2		1
33	59	5		1	51	9			36	7		1	19	2	.8428	1
34	59	7			51	7		1	36	7		1	18	11		
35	59	3			49	7		1	32	1		1	19	1		
36	58	11			47	5		1	30	9			19			
37	56	10	2.5456	1	46	8	2.0946		27	5	1.3129		18	7		
38	52	5			43	3			27	5			15	6	.7503	1
39	48	3			39	7		1	29	9			14			
40	43				36	7		2	27	2		2	14	2		
41	40	10		1	36				27	1			12	7		1
42	37	1	1.9394		36				24	8			12	10		
43	31	3			31	9	1.7703		23	7	1.2149		13		.6973	
44	31				33	1			23				11	9		
45	33	3			32	3		1	20	2			12			
46	32	4			30	5			19				12			
47	31	5	1.9081	1	28	8			17	10			12			
48	31				28		1.6391		17	1	1.0080		12		.7067	
49	31				27	6			16				11	9		
50	30				27				14	1			11			
51	29	3			27				13	9		1	10	2		
52	28	7			11				12	10			10			
53	26	3	2.1160	1	25	8	1.9185		10	9	.8824		10		.7707	
54	23	4			22	7		1	10				10			
55	22	3		2	20	6		2	10				9	11		
56	19				1	18			10				9			
57	19	11		1	18				10				9			
58	18		2.0802		18		1.9308		9	4	.9725	1	8		.8550	1
59	17	10			18				8	3			7	9		
60	17				18				8				6	4		
61	16	3			16	5			8				5	2		
62	16			1	16				7			2	5			
63	15		2.5033		16		2.3182		5	7	.9988		5		.7145	
64	11	10			14	1			5				5			
65	14				11	7			4	5		1	2	8		1
66	12	5			10				2	2			1	9		1
67	11	11	2.8311	1	9	4			1	4			1			
68	11				7	7	1.7630		1		.3097		1		.2740	
69	10	1			5	1			1				1			
70	7	7			5				1				1			
71	7				5				1				1			
72	7				5				1				1			
73	6	5	2.4271	1	5		1.6958		1		.3687		1		.4608	
74	4	11			4				1				1			
75	4				3				1				1			
76	2				3				1				1			
77	1	10	1.1381	1	2				1				3			
78	1				1		1.2768		1		.9533					
79	1				1				1							
80		5		1	1				1							
81					5			1	1							
82									1							
83									7			1				
Total yrs.	1492	1	22.2956	18	1461	7	21.1612	17	823	4	9.6954	14	601	5	7.4390	12
Add ages unknown	45	3			30	3							61	8		
Total..	1537	3	22.9090	18	1491	10	21.5992	17	823	4	9.6954	14	663	1	8.2018	12

R E C A P I T U L A T I O N .

MORTALITY STATISTICS—MISSIONARIES A. B. C. F. M.

	MALES.					FEMALES.				
	Number o' lives.	Years of exposure.	Expected mortality.	Actual mortality.	Ratio of actual to expected mortality.	Number of lives.	Years of exposure.	Expected mortality.	Actual mortality.	Ratio of actual to expected mortality.
Western Africa, River Gaboon, and Cape Palmas.....	19	151.2	1,5747	8	5.0803	20	136.6	1,1897	8	6.7244
South Africa.....	21	363.3	4,4372	5	1.1294	21	357.	3,6267	3	.8272
Turkey and Greece.....	104	1351.2	15,6112	24	1.5344	126	1201.7	11,2359	28	2.4920
Syria.....	27	368.10	3,7327	7	1.8753	40	351.4	3,2904	9	2.7278
Persia.....	23	255.3	2,6772	11	4.1088	24	247.1	2,2368	5	2.2154
India, Ceylon, Madras, Madras, Siam, and Indian Archipelago	127	1636.11	19,6963	42	2.1324	147	1478.2	16,7741	55	3.2789
South China. . .	22	308.4	3,5027	8	2.2840	17	191.8	1,6492	8	4.7248
North China.....	14	161.9	1,6316	3	1.8353	13	141.9	1,6156	1	.6190
Sandwich Islands and Micronesia	78	1537.3	22,9690	18	.7837	76	1491.10	21,5992	17	.7871
Cherokee and Choctaw Indians.....	61	823.4	9,6954	14	1.4131	39	663.1	8,2018	12	1.4631
Total.....	496	6957.3	85,5510	140	1.6305	523	6260.	71,4624	146	2.0488

In preparing the foregoing tables, it has occurred to the writer that it might be of great importance to the cause of Foreign Missions, as well as for the information of the public at large, that careful and accurate statistics of the health, exposure, and mortality of the foreign missionaries should be prepared. When we take into consideration the years of constant study and the initial expense of fitting one for this field of labor; the difficulty in finding the right class of men, who are willing to peril their lives and health in this cause, at a time when wealthy congregations are willing to pay liberally for their services at home; and especially the fact that the majority of them return with impaired health after a few years' exposure—the value of a single life rises to an importance which it is impossible for us to estimate in money, and the subject of knowing their sanitary and mortality experience, and of discovering such methods as will enable them to prolong their lives and usefulness, becomes a matter which ought to concern all who take an interest in the cause.

These tables also suggest the question whether some investigations should not be made, or statistical information obtained, to lessen the great excess of mortality among the female lives. In nearly all the mission fields the female mortality is from thirty to fifty per cent. greater than among males, which is far greater than the corresponding mortality among the sexes in the United States. It seems as if it would be but an act of justice towards that sex which makes the greatest sacrifices, who lead silent and uncomplaining lives among so much that is repugnant and disgusting to their finer sensibilities, that the causes which have produced this excess of mortality should be thoroughly investigated, and, if possible, measures taken to avoid it in the future.

